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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,112	01/03/2006	Hans-Peter Brack	2003P10352WOUS	1143

28204 7590 09/11/2008

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ART UNIT	PAPER NUMBER
1791	

MAIL DATE	DELIVERY MODE
09/11/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/563,112	BRACK ET AL.	
	Examiner	Art Unit	
	Magali P. Théodore	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 June 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) *18-32* is/are withdrawn from consideration.

5)☒ Claim(s) *1-17* is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 January 2006* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/3/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Election/Restrictions

1. Applicant's election without traverse of claims 1-17 in the reply filed on June 20, 2008 is acknowledged.

2. Claims 18-32 stand withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on June 20, 2008.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-10 and 12-15 rejected under 35 U.S.C. 102(b) as being anticipated by Yamamoto et al. (US 2003/0008935 A1), henceforth Yamamoto.

Regarding claim 1, Yamamoto teaches method for grafting a chemical compound to a predetermined region of a substrate (¶ 6) by irradiating selectively the substrate with ionizing radiation, thus defining said predetermined region and forming a reactive functional group or a precursor thereof in that region (radicals, ¶ 12 ln 8), and by exposing the irradiated substrate to said chemical compound or to a precursor thereof.

Regarding claim 2, Yamamoto teaches conducting the irradiating and exposing steps simultaneously (¶ 7, ln 8-11).

Regarding claim 3, Yamamoto teaches conducting the irradiating and exposing steps sequentially (¶ 6).

Regarding claims 4-6, Yamamoto teaches the elongation, a physical property of the predetermined region, depends partially on the total dose of the of radiation (¶ 10-12).

Regarding claim 7, Yamamoto teaches choosing the substrate according to a property desired in the substrate (its 0.5 mm thickness, examples 1-6, first line of each).

Regarding claim 8, Yamamoto teaches that the substrate is organic (PTFE, ¶ 8, ln 2).

Regarding claim 9, Yamamoto teaches that the reactive functional group is a radical (¶ 12 ln 8).

Regarding claim 10, Yamamoto teaches using X-ray radiation (¶ 11 ln 2).

Regarding claim 12, Yamamoto teaches using an electron beam (¶ 11 ln 2).

Regarding claims 13-15, Yamamoto teaches that the compound is a radically active organic monomer (hydroxystyrene or acrylic ester, ¶ 14 ln 17-18) in a liquid solution (¶ 19, ln 1-3) containing an inert solvent (¶ 19 ln 6-7).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 11 and 17 rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto as applied to claims 1 and 10 above, and further in view of Nealey et al. (2003/0091752 A1), henceforth Nealey.

Regarding claim 11, Yamamoto does not teach using interference lithography. However, Nealey teaches that interference lithography can produce more precise results with less expense and less fuss than electron beam lithography (¶ 2). Therefore it would have been obvious to one of ordinary skill in the art to use interference

lithography in the method taught by Yamamoto because Nealey teaches its value as a cheaper, easier alternative to electron beam lithography.

Regarding claim 17, Yamamoto does not teach removing the substrate from the grafted material. However, Nealey teaches removing the substrate to free the grafted material as a template for nanofabrication (¶ 5 ln 17-20). Therefore, it would have been obvious to one of ordinary skill in the art to detach or dissolve away the substrate taught by Yamamoto because Nealey teaches removing the substrate to make the grafted piece available as a nanofabrication template.

9. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto as applied to claim 1 above, and further in view of Lal et al. (US 2003/0074983), henceforth Lal.

Yamamoto does not teach a three-dimensional tube or channel. However, Lal teaches that "many applications" require micron-sized channels to manipulate fluids in small volumes (¶ 2). Therefore it would have been obvious to one of ordinary skill in the art to create channels in the substrate taught by Yamamoto because Lal teaches the utility of microchannels in a variety of applications.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Magali P. Théodore whose telephone number is (571)

270-3960. The examiner can normally be reached on Monday through Friday 9:00 a.m. to 5:30 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina A. Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Magali P. Théodore/
Examiner, Art Unit 1791

/Christina Johnson/

Supervisory Patent Examiner, Art Unit 1791